

**STAFF REPORT
THE NICOLETTI OIL FACILITY
DOS PALOS, MERCED COUNTY**

SUMMARY

This item includes the Board's consideration to adopt a:

- (1) Board Resolution to approve an Initial Study and adopt a Mitigated Negative Declaration;
- (2) Board Resolution to approve a Remedial Action Plan for soil and groundwater cleanup; and
- (3) Revised Cleanup and Abatement Order (Order)

Petroleum hydrocarbon products have been discharged to the soil and groundwater at the Nicoletti Oil Facility located in the town Dos Palos, Merced County (site). In August 2005, the Discharger submitted a draft Remedial Action Plan (RAP) proposing to remediate the site to levels that protect human health and the environment, using a combination of groundwater extraction and treatment and soil vapor extraction technology. Water Board staff conditionally approved the RAP in September 2005 subject to completion of the California Environmental Quality Act (CEQA) review process and Water Board approval. The Discharger none-the-less decided to proactively proceed with construction of the remedial systems proposed in the RAP.

This proposed Order, which replaces the existing Cleanup and Abatement Order No. R5-2005-0701, provides requirements for the Discharger to operate the site remediation system and provides enforceable time schedules for monitoring and reporting of site groundwater conditions and remediation system performance.

Remediation of the site is critical due to the presence of separate phase hydrocarbons floating on the water table (floating product), which is less than 5 feet below the surface, and the proximity of the floating product to residences across the street from the site. The floating product has been identified as a mixture of gasoline and diesel fuel that contains methyl tertiary butyl ether (MTBE) and tetraethyl lead (TEL), a highly toxic gasoline additive.



Nicoletti Oil Facility

INTRODUCTION

In 1946, Mobil Oil Corporation¹ opened a bulk fuel distributorship at 2801 Blossom Street in Dos Palos. Mr. Dino Nicoletti operated the facility as a consignee. Mobil owned the facility from 1946 to 1980 and Nicoletti Oil, Inc. purchased the facility in 1980. A vicinity map depicting the site location in Dos Palos is provided below.

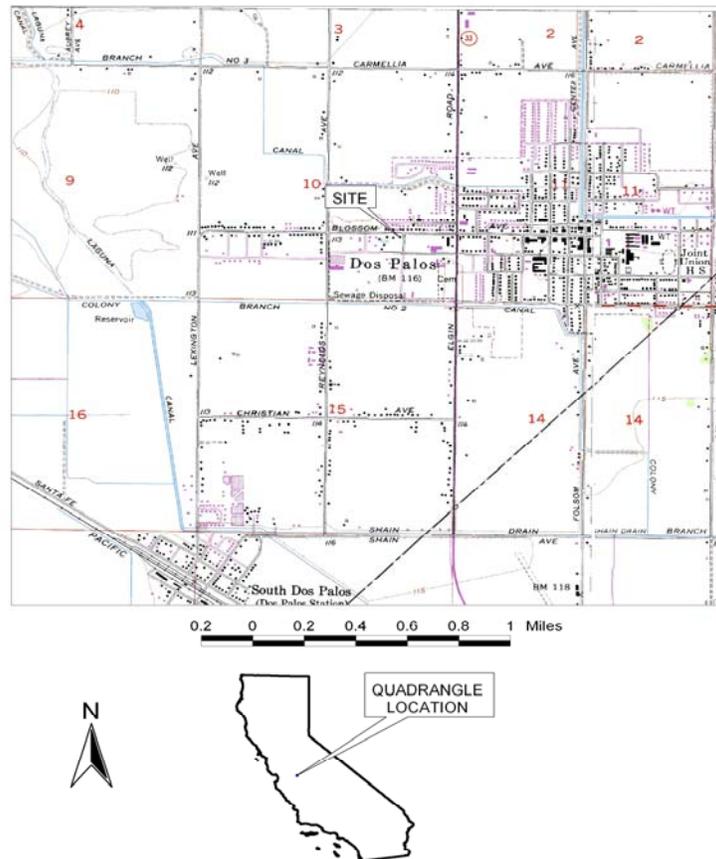


Figure 1 - Site Vicinity Map

In June 1988, two 5,000-gallon aviation fuel USTs and one 350-gallon waste oil UST were removed from the Nicoletti facility. Petroleum hydrocarbon impacts to soil and groundwater were discovered beneath the USTs. The Merced County Environmental Health Department (County), the local regulatory oversight agency, then issued a *UST Unauthorized Release (Leak)/Contamination Site Report* on 27 July 1988 requiring the investigation of petroleum hydrocarbon impact to groundwater beneath the Site. Regulatory oversight was transferred to the Water Board in March 2003 after several rounds of investigation activities

¹ As a result of a merger in 1999, Mobil Oil Corporation became part of ExxonMobil Corporation (ExxonMobil)

demonstrated petroleum hydrocarbon impact to groundwater beneath the Site. This later data also indicates that the petroleum hydrocarbon pollution originates from additional sources, such as leaking pipes and surface spills, in addition to the USTs removed in 1988.

DISCHARGER IDENTIFICATION

According to Water Code Section 13304(a) Nicoletti Oil, Inc. and ExxonMobil (as a successor in interest to Mobil Oil Corporation) are Dischargers for petroleum hydrocarbon releases from the facility because both entities have either previously owned or currently own and operate the bulk fuel distributorship located at 2801 Blossom Street in Dos Palos, where waste was discharged into waters of the State.

The Discharger is subject to an order pursuant to Water Code Section 13304 because the Discharger has caused or permitted waste to be discharged or deposited where it has discharged to waters of the state and has created, and continues to threaten to create, a condition of pollution or nuisance. The condition of pollution is a priority violation and issuance or adoption of a cleanup or abatement order pursuant to Water Code Section 13304 is appropriate and consistent with policies of the Water Board.

ENFORCEMENT ACTIONS

Following the County's issuance of the Unauthorized Release Report in 1988, in 1991 the County issued a Notice and Order to Nicoletti Oil, Inc. and Mobil Oil Corporation requesting submittal of a site contamination work plan to investigate petroleum hydrocarbon impact to soil and groundwater beneath the Site. If groundwater was found to be impacted, the Dischargers were required to submit a problem assessment report to delineate the extent of groundwater contamination followed by a site remediation work plan.

In May 1996, the County granted case closure for the 350-gallon waste oil UST based on the absence of a threat to the human health or groundwater resources related to that UST release and its associated residual soil contamination.

In March of 2003, regulatory oversight was transferred from the County to the Water Board because investigations revealed that the groundwater has been impacted with dissolved phase hydrocarbons and floating product was present on the water table beneath the Site. The presence of MTBE and diesel in the groundwater indicate that the source of the contamination was not only associated with the three USTs removed from the site in 1988.

HISTORY OF SITE INVESTIGATIONS

Multiple rounds of subsurface investigations have been performed at the Site to determine the extent of soil and groundwater contamination. A site plan showing the facility location, former and existing above and below-ground tank locations, site buildings, surrounding properties and the historical extent of groundwater contaminant plumes is provided below.

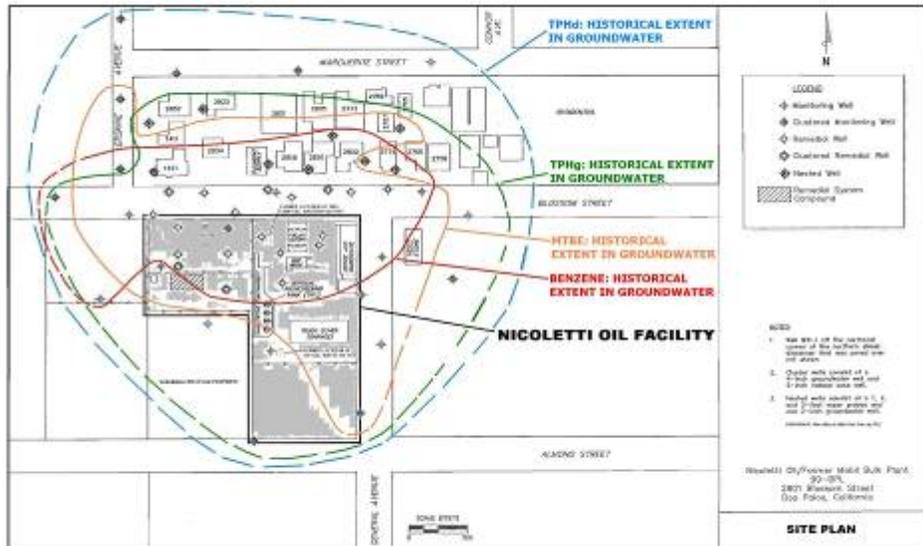


Figure 2 - Facility Map²

During the June 1988 UST removal, the County reported that strong petroleum odors were present in the aviation fuel UST excavation. Groundwater was encountered at approximately 8 feet below ground surface. The maximum contaminant concentration data in soil and groundwater samples taken during the tank removal are tabulated below.

² Figure 2 – Facility Map contours represent an interpretation of the possible extent of groundwater contamination for the purposes of the proposed CAO and are not representative of site risks or potential exposures at the Site.

Soil Constituent	Maximum Concentration (mg/kg)
TPHd	190
TPHg	470
Benzene	4.9
Toluene	14
Ethylbenzene	6.6
Xylenes	190
Oil and Grease	1,350
Cadmium	1
Chromium	24
Lead	3
Zinc	38

mg/kg = milligrams per kilogram

Groundwater Constituent	Concentration (µg/L)
TPHd	91,000
TPHg	79,000
Benzene	5,200
Toluene	2,500
Xylenes	15,000

µg/L = micrograms per liter

Some groundwater monitoring took place at the site starting in 1994. However, there were no field investigation, monitoring, or reporting activities conducted from October 1998 to December 2002.

Several rounds of soil vapor, soil, and groundwater investigations as well as quarterly groundwater monitoring have been conducted since late 2002. A total of 51 groundwater monitoring wells and 44 vapor probes have been installed during site investigations since 1993.

The extent of floating product on the water table has been defined during the course of quarterly monitoring activities. Floating product has been reported to consist of a mixture of gasoline and diesel fuel that contains TEL, an organic form of lead that is highly toxic to humans through inhalation and dermal contact. TEL is highly volatile and readily volatilizes from solution to the vapor phase. It then becomes present as soil vapor that could potentially migrate to indoor air. Floating product has been reported in 21 monitoring wells (12 onsite wells and 9 offsite wells) with a maximum layer thickness of 5.24 feet measured in an onsite well in 1996.

The photo below shows the proximity of the residences, located across Blossom Street, to the facility.



Nicoletti Oil Facility Fuel Dispenser and Blossom Street Residences

TEL has not been detected in groundwater samples, although the laboratory reporting limit utilized of 300 $\mu\text{g/L}$ greatly exceeds the Central Valley Basin Plan's water quality objective for toxicity of 0.0007 $\mu\text{g/L}$. The proposed Order requires that future groundwater sample analyses for TEL utilize the minimum commercially available reporting limit to evaluate the presence of dissolved TEL.

Quarterly groundwater monitoring activities have shown that the lateral extent of the dissolved diesel, gasoline, MTBE and benzene plumes have not been fully delineated to non-detectable concentrations at the site. The dashed lines on Figure 2, page 5, shows where the locations of the plume boundaries remain uncertain. With the recovery of the floating product, which is the primary source of the groundwater contamination, and the removal of dissolved phase contaminants through soil vapor extraction and groundwater extraction and treatment, the plumes will stabilize and then recede over time. Final characterization of the plumes is expected to occur as part of the ongoing remedial systems optimization and effectiveness monitoring process.

In June 2004, the Discharger reported the results of a well survey in an attempt to identify nearby water supply wells. Eleven other wells were identified within one mile of the Site, but due to their distance and screen interval depths they were not believed to be threatened.

The Discharger has conducted several rounds of soil vapor sampling. Soil vapor sampling is limited to shallow depths, typically 5 feet bgs or less, because of the shallow depth to groundwater and limited vadose zone.

In October 2003, soil vapor sampling was performed at seven locations at the perimeter of the residential neighborhood north of the Site. The maximum concentrations of TPH from C₂-C₁₀ (gasoline range), benzene, and MTBE were reported along Blossom Street northwest of the former location of the aviation fuel USTs. Maximum contaminant concentration data are tabulated below.

Soil Vapor Constituent at Location SG-2	Maximum Concentration (ppbv)
TPH C ₂ -C ₁₀	37,000
Benzene	300
MTBE	5,000

ppbv = parts per billion by volume

In May 2005, TEL was reported at a concentration of 0.24 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) at a depth of 1 foot bgs in a vapor sample. That level exceeds the California Human Health Screening Level (CHSSL), established by the California Office of Environmental Health Hazard Assessment, of $0.206 \mu\text{g}/\text{m}^3$ for shallow soil vapor based upon the potential for intrusion of TEL into indoor air.

In addition to soil vapor sampling, the California Air Resources Board conducted the initial indoor air and residential crawlspace air sampling effort in February 2005. The Discharger conducted rounds of air sampling in February 2005 and May 2005. The indoor air was sampled at four residences, in crawlspace air sampling at nine residences, and background ambient air was sampled near four residences and at one street intersection.

Reported concentrations of benzene and TEL and their locations are tabulated below. These data exceed the indoor air CHHSLs of $0.084 \mu\text{g}/\text{m}^3$ benzene and $3.65 \times 10^{-4} \mu\text{g}/\text{m}^3$ TEL for residential land use. In addition to the data tabulated below, benzene and TEL were reported at concentrations of $3.58 \mu\text{g}/\text{m}^3$ and $0.055 \mu\text{g}/\text{m}^3$, respectively, in an *ambient air* sample collected near the residence at 2810 Blossom in May 2005.

Constituent	Sample Location / Type	Concentration ($\mu\text{g}/\text{m}^3$)	CHHSL ¹ ($\mu\text{g}/\text{m}^3$)
Benzene	2802 Blossom / Indoor Air	0.975 ²	0.084
Benzene	1411 Erskine / Crawlspace	0.65 ²	0.084
Benzene	2774 Blossom / Crawlspace	0.325 ²	0.084
Benzene	2805 Marguerite / Crawlspace	0.65 ²	0.084
Benzene	2810 Blossom / Crawlspace	0.325 ²	0.084
Benzene	2818 Blossom / Crawlspace	0.325 ²	0.084
Benzene	2833 Marguerite / Crawlspace	0.65 ²	0.084
Benzene	2834 Blossom / Crawlspace	0.325 ²	0.084
Benzene	2802 Blossom / Crawlspace	0.975 ²	0.084
TEL	2774 Blossom / Indoor Air	1.85	0.000365
TEL	2810 Blossom / Crawlspace	0.8	0.000365

¹California Human Health Screening Level (CHHSL) for indoor air under residential land use scenario as established by the Office of Environmental Health Hazard Assessment (OEHHA).

²Benzene reported in parts per billion by volume (ppbv) converted to micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) where 1 ppbv benzene = 3.25 $\mu\text{g}/\text{m}^3$ benzene.

The above results represent maximum levels detected over several rounds of sampling. Consistent detections of contaminant levels above the CHHSLs have not been measured. However, the Discharger has been operating a soil vapor extraction system on an intermittent basis (described below) and, as a further precautionary measure, the discharger provided each of the residents in the vicinity of the plume with an in-home carbon air filtration device.

SITE REMEDIATION HISTORY

In 1996 SPH was removed from onsite and offsite wells located in Blossom Street on a monthly basis using a pneumatic skimming pump. The greatest accumulation of floating product was a layer 5.24 feet thick measured in an onsite well in 1996. Approximately 50 gallons of floating product was removed from the wells from January 1996 through May 1997.

The Discharger resumed removal of floating product from the monitoring wells in December 2003. The floating product was hand-bailed from several onsite and offsite wells located in Blossom Street on a bi-weekly to weekly basis.

In September 2004, the Discharger commenced dual-phase extraction of soil vapor, groundwater, and floating product using a mobile treatment system. This system removed approximately 3,900 pounds (600 gallons) of petroleum hydrocarbon vapors as well as approximately 11,700 gallons of contaminated groundwater.

The Discharger submitted a draft Remedial Action Plan (RAP) in September 2005 for construction and operation of permanent soil vapor extraction and groundwater pump-and-treat systems. Board staff conditionally approved the RAP in October 2005 subject to completion of the CEQA review process and Water Board approval. Details regarding the CEQA findings and a description of related comments from interested parties are provided below in the CEQA Review Process section of this report.

The Dischargers proceeded with the construction of a permanent remediation system consisting of a groundwater pump-and-treat system and a soil vapor extraction (SVE) system as proposed in the RAP even though final approval of the RAP had not been provided. Construction of the systems was completed in December 2005. Polluted groundwater is being extracted from onsite wells and offsite wells in Blossom Street. The groundwater system has the capacity to extract groundwater from 19 wells, but due to floating product and high groundwater hydrocarbon concentrations, only seven wells were being utilized at the time of this report. The groundwater influent is pumped through an oil-water separator followed by an air stripper to initially remove some of the volatile constituents. The water is then piped through three 1,000-pound granular activated carbon (GAC) canisters connected in series before being discharged to the city sewer system and the City of Dos Palos wastewater treatment plant. Effluent water from the system is monitored weekly after passing through each GAC canister to check that petroleum hydrocarbon concentrations do not exceed limits established by the City of Dos Palos wastewater treatment plant.

The SVE system utilizes a blower to extract hydrocarbon vapors from the soils from 19 wells located onsite and in Blossom Street. A thermal oxidizer destroys extracted vapors and off-gas from the air stripper. Through the first quarter 2006, the SVE system removed approximately 5,100 pounds (850 gallons) of hydrocarbons while the groundwater system has removed approximately 383 gallons of floating product and 463,600 gallons of contaminated groundwater.



Remediation System Soil Vapor and Groundwater Extraction Manifolds

Continued operation of the remediation systems should be effective in mitigating the risk of indoor air migration of VOCs from the subsurface and reducing groundwater contaminant concentrations over time. The proposed CAO requires the Discharger to optimize the remediation system by improving operation time and pollutant removal rates and to report the effectiveness of optimization on an annual basis.



Remediation System Activated Carbon Groundwater Treatment Vessels

PRIOR REGIONAL BOARD ENFORCEMENT ACTIVITIES

The Water Board issued CAO No. R5-2005-0701 on 3 February 2005. The CAO required the Discharger to:

1. Develop and implement an interim remedial action plan (RAP) to abate subsurface migration
2. Submit an additional site assessment report to delineate the extent of petroleum hydrocarbons in groundwater as a means of evaluating the extent of the area at risk to soil vapor migration
3. Submit a corrective action plan (CAP) including a human health risk assessment (HHRA).

The Discharger completed these activities and the proposed Order, once adopted, would replace Order No. R5-2005-0701 and require cleanup of the soils and the groundwater by requiring operation, optimization, and monitoring of the permanent remediation system.

CEQA REVIEW PROCESS

Water Board staff prepared an Initial Study as part of the CEQA review process for the remediation project as described in the RAP (a copy of the Initial Study is included with this report as Attachment A). Based on the findings of the Initial Study, Water Board staff prepared a Mitigated Negative Declaration (a copy of the Mitigated Negative Declaration is included with this report as Attachment B) to address potential environmental impacts from operation of the permanent remediation system.

The Mitigated Negative Declaration includes the following mitigation measures for potentially significant impacts of the project:

- a) Monitoring of the soil vapor extraction and treatment system emissions will be performed and if Air Pollution Control District criteria are exceeded the system will be shutdown and modified as necessary until the criteria are met,
- b) Monitoring of the groundwater extraction and treatment system effluent quality and flow will be performed to assure that the treated water will not adversely affect the operations of the City of Dos Palos municipal sewer system and if effluent criteria are not met, the system will be shut down and modified as necessary to meet the criteria,
- c) Noise levels of the treatment systems, if unacceptable to the City of Dos Palos, will result in modifications to the system to reduce noise levels to acceptable levels as part of the proposed Order.

A Notice of Completion for the Mitigated Negative Declaration was submitted to the State Clearinghouse on 25 October 2005. Comments on the Mitigated Negative Declaration were received from the Air Pollution Control District and the California Department of Transportation. Air Pollution Control District comments and concerns are addressed in the permit issued by that agency for the remediation project. CalTrans commented that additional studies may be required if an encroachment permit from CalTrans becomes necessary.

Mitigated Negative Declaration review comments were also received from a law firm representing occupants of seven residences north of Blossom Street. The comments noted the need for monitoring of the proposed mitigation measures for effluent air and water quality, and whether the remediation system could effectively remediate the contamination such that the health of the residents is protected. Emissions control measures were implemented during construction of the permanent remediation system, although construction issues are not part of the CEQA project, which relates the long-term operation of the remedial systems. Required monitoring programs and other measures incorporated into the proposed Order address the remaining comments. The comments received on the Initial Study and Mitigated Negative Declaration, as well as responses from Water Board staff, are provided as Attachment C to this staff report.

PUBLIC PARTICIPATION

Public participation has been an important aspect of the investigation and cleanup of petroleum hydrocarbon contamination associated with the Nicoletti Oil facility. Access agreements were secured from several residents north of Blossom Street to allow subsurface investigations to proceed on their property and the collection of air samples from residential crawlspaces and interiors. The public has been kept informed of the results of these investigations through direct mailings to nearby residents and the establishment of a local document repository at the community library.

The project has generated public interest outside of the City of Dos Palos. Newspaper articles regarding pollution at the Site were published in the Merced Sun-Star in March 2005 and August 2005.

Nearby residents and property owners have been made aware of the potential health risks associated with petroleum hydrocarbons released at the Nicoletti Oil facility. The Discharger distributed a fact sheet and advisory to nearby residents in April 2005 advising them against consuming produce grown on their property and contacting groundwater and saturated soil to mitigate potential health risks from these activities. The proposed Order requires that a health advisory be renewed on an annual basis along with a fact sheet to update nearby residents, businesses and property owners on the status of investigation and cleanup activities. The advisory and fact sheet were translated from English to Spanish

for distribution to Spanish-speaking households. The fact sheet is provided as Attachment D to this staff report.

A public meeting was held at the City of Dos Palos city hall in July 2005. The meeting was attended by many of the nearby residents as well as the Discharger, the Discharger's environmental consultant, and Water Board representatives. The consultant presented the status of ongoing site investigation and cleanup activities, the implications for owners and residents overlying the groundwater plume, and future planned activities.

COMMENTS RECEIVED ON THE DRAFT ORDER

ExxonMobil (through Bingham McCutchen, LLP) submitted comments on the draft Order and MRP on 24 May 2006. A copy of these comments and the response to comments by Water Board staff are provided as Attachment E to this staff report. The comments on the draft Order largely consisted of a request to include additional clarifying language and for technical corrections. Water Board staff concurred with many of the suggested revisions and made revisions to the draft Order. A summary of these changes are as follows:

- A footnote was added to CAO Figure 2 clarifying what the groundwater plume contours shown on the Figure were meant to represent.
- Clarification that the cited dissolved phase TPHg and TPHd concentrations were probably from samples that contained floating product.
- Clarification that TEL was reported in samples of floating product instead of groundwater.
- Included a statement regarding the non-reproducibility of TEL detections in residential indoor and crawlspace air samples during subsequent sampling rounds.
- Additional clarification regarding the applicability of the CHHSL for TEL as it is a theoretically calculated screening level and not a promulgated standard and included, for reference, the OSHA standard for TEL.
- Altered the designation of TEL from a known human carcinogen to a probable human carcinogen.
- Clarified that the Water Quality Objective for TEL is the value is less than the laboratory quantitation limit and that the objective will effectively be non-detectable levels.
- Modified the required notification and reporting periods for remediation system shutdown.

The Discharger requested that the proposed Order include a requirement for a survey of the integrity of the fuel storage and delivery system at the Nicoletti Oil

facility. Water Board staff understand the need for this requirement but do not, at this time, propose to include the requirement in the proposed Order. The main purpose of the proposed Order is to provide for the operation and maintenance of the remedial systems approved in the RAP. A storage and delivery system integrity survey, and remedial actions which may follow based on the results of the survey, will be handled as a separate issue from this proposed Order.

Regional Board staff disagreed with two other proposed language revisions. The Discharger maintained that the only enforceable air standard for TEL is the OSHA standard. OSHA standards are designed to protect adults exposed during a limited duration work shift and, in many cases do not consider cancer risk. The OSHA standard is clearly not applicable nor protective for the indoor air of residents who may be sensitive receptors (such as children) and who may be exposed continuously for long periods of time. The Discharger also maintained that the proposed groundwater samples for TEL have a detection limit of 0.3 mg/l. Because the groundwater criteria for TEL will be based upon the detection limit, the Discharger has been asked to determine the lowest commercially available detection limit. Water Board staff expects that even this limit will be much higher than the theoretical standard based on toxicological data of 0.0007 micrograms-per-liter.

STAFF REPORT SUMMARY AND RECOMMENDATION

The following section summarizes the main items discussed in this staff report and provides the recommendation of Water Board staff:

- The Nicoletti Oil facility in Dos Palos is currently or has been owned and operated by Nicoletti Oil, Inc. and ExxonMobil Corporation since 1946.
- Gasoline and diesel fuel containing TEL and MTBE have been discharged to soil and groundwater beneath the facility.
- Polluted groundwater, as a result of these discharges, is present beneath the facility and residences north of Blossom Street.
- Benzene and TEL have been reported in residential indoor air and crawlspace air samples at levels exceeding relevant screening criteria.
- The Discharger has presented a Remedial Action Plan proposing to cleanup the site by conducting soil vapor and groundwater extraction and treatment.
- The CEQA review process has been followed and a Mitigated Negative Declaration for the project has been prepared.

Based on the information presented in this staff report and the administrative record, Water Board staff recommends that the Board:

1. Adopt of the resolution to approve the Initial Study and adopt the Mitigated Negative Declaration.
2. Adopt of the resolution to approve the RAP.
3. Adopt of the proposed Order.